V. *Appendix to the Deſcription of a new Electrometer. In a Letter from the Rev.* Abraham Bennet, *M. A. to* Charles Blagden, *M. D. Sec. R. S.*

Read December 21, 1786.

SIR, Wirkſworth, Dec. 18, 1786.

THE following deſcription of my Electrometer, connected with M. VOLTA's Condenſer, waits on the approbation of the Royal Society, to be inſerted in the Philoſophical Tranſactions, as an Appendix to my Paper, communicated by Dr. PRIESTLEY.

The metallic cap of the electrometer is for this purpoſe to be ground and poliſhed flat and ſmooth, to fit a piece of marble alſo poliſhed on both ſides, and varniſhed. In the ſide of the marble is to be fixed a glaſs or baked-wood handle. Laſtly, on the top is a ſmaller metallic plate, furniſhed alſo with an inſulating handle. The whole conſtruction will be underſtood by the annexed drawing (ſee Table III. fig. 2.). When a ſmall charge of electricity is communicated to the metal at A, whilſt the marble B is touched, the ſingle condenſer is charged, and its electricity (if in ſufficient quantity) will be ſenſible when the marble is lifted up by the handle C; but, if not now ſenſible, touch the ſmall plate D, whilſt thus lifted up ffom the cap, and then lift it off the marble by its inſulating handle, and pre-

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ſenting it to the cap of the electrometer (if not ſtill in too ſmall a quantity) it will cauſe a divergence of the leaf gold, by an electricity of the ſame kind with that which was communicated to the cap, and in which cap a ſmall quantity of electricity remains. Thus both the larger and ſmaller condenſers of M. VOLTA are connected with the electrometer, ſo as to be uſed in the moſt ſimple, expeditious, and convenient manner I can think of. Their amazing power of condenſing electricity is ſufficiently explained in M. VOLTA's Paper, before publiſhed in the Philoſophical Tranſactions.

To the experiments on blowing powders from a pair of bellows I have to add, that if the powder is blown at about the diſtance of three inches upon a plate which is moiſtened or oiled, its electricity is contrary to that produced by blowing upon a dry plate. This ſhews that the electricity of the ſtreams of powder iſſuing out of the bellows is only contrary to the more expanded part, becauſe it is within the influence of its atmoſphere; for when this is deſtroyed by the adheſion of the powder to the moiſtened plate, it is negative when the bellows are poſitive, as it was before poſitive when the more expanded cloud was negative.

I have alſo to add, that the experiments on evaporation of water may be tried with more eaſe and certainty of ſucceſs by heating the ſmall end of a tobacco pipe, and pouring water into the head, which, running down to the heated part, is ſuddenly expanded, and will ſhew its electricity when projected upon the cap of the electrometer, more ſenſibly than any other way I have tried. If the pipe be fixed in a cloven ſtick, and placed in the cap of one electrometer, whilſt the ſteam is projected upon another, it produces both electricities at once.

Spirit of wine and ether are electrified like water. Oil and vitriolic acid produced ſmoke without any change of electricity. In theſe experiments a long pipe is better than a ſhort one.

I am, &c.

ABRAHAM BENNET.

Fig. 1.

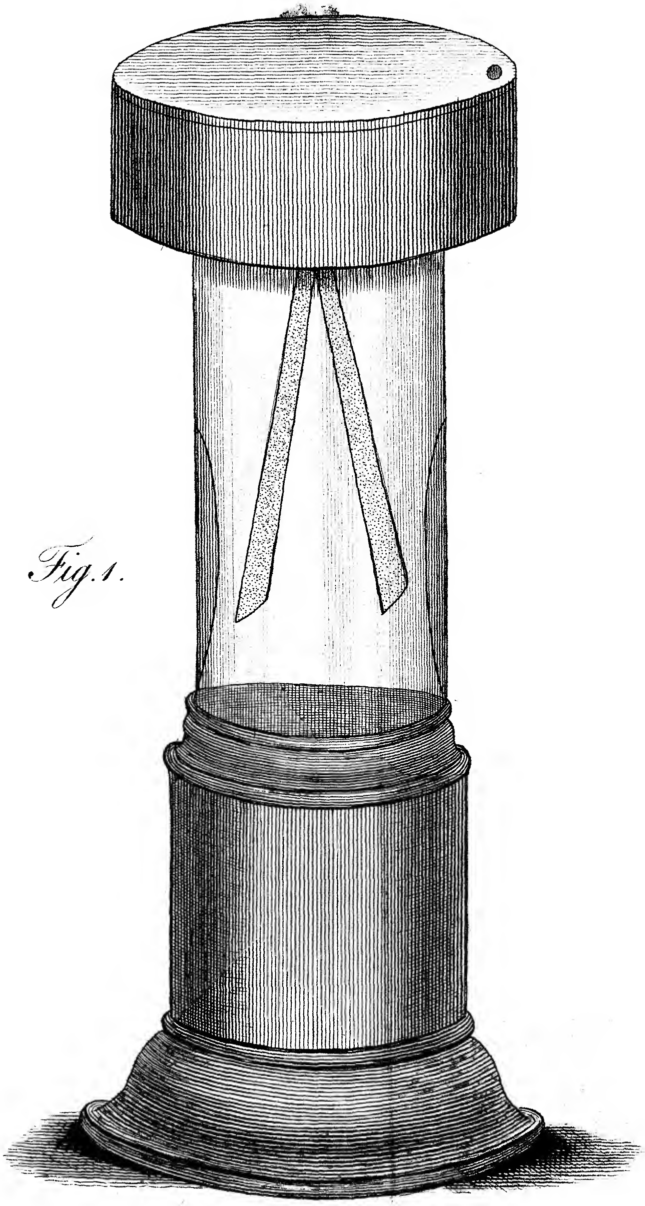
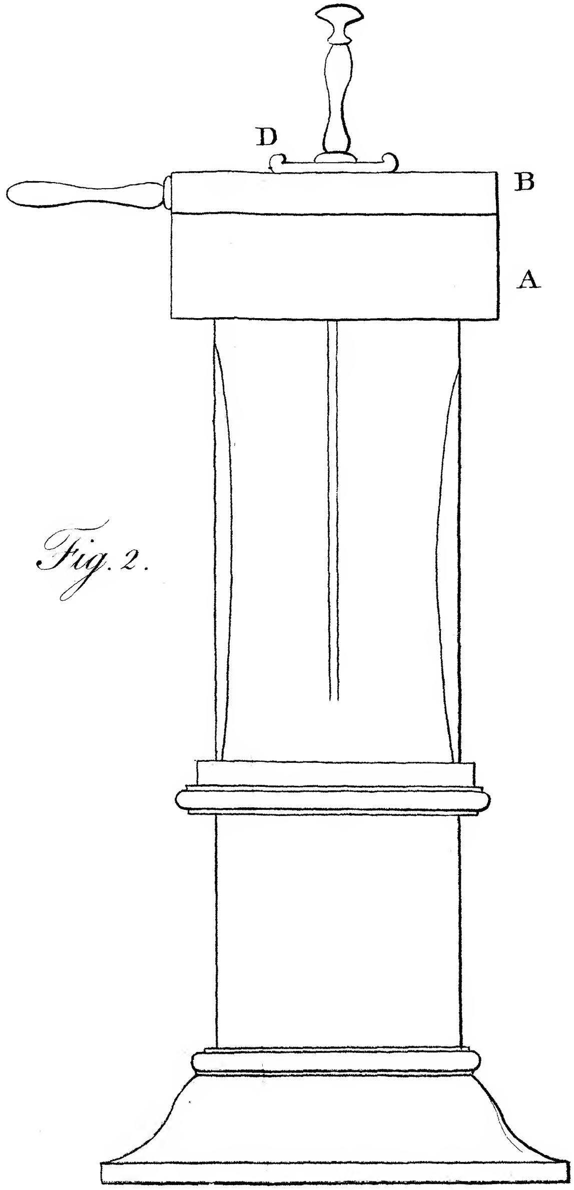


Fig. 2.



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